

# BIOTOXIN MONTHLY REPORT

## April 1999

### **SHELLFISH MONITORING: Domoic Acid in Southern California**

The enclosed report (No. 99-10) shows the distribution of marine biotoxins during April. The presence of low levels of domoic acid in March along the San Diego coast continued through April. In addition, domoic acid was also detected farther north along the coast of Orange County. The highest concentration detected was 9.3 ppm in mussels collected offshore on April 5. Domoic acid was not detected by the last week of April. Program participants submitting shellfish samples are listed in Table 1.

### ***Samplers Needed***

There is always the need for additional shellfish samples to be collected along the coast. The frequent monitoring of toxin levels in different species of shellfish provides us with a valuable tool for protecting the public's health. In addition, it provides a wonderful excuse for spending a little time at the seashore! We would like to encourage anyone wishing to join the shellfish sampling program to contact us. We will provide all materials needed to package and ship shellfish samples to our Berkeley laboratory.

### ***Quarantines***

The annual quarantine on sport-harvested mussels occurs each year from May 1 through midnight on October 31. This quarantine applies only to sport-harvested mussels along

the entire California coastline, including all bays and estuaries. All commercial shellfish growers certified by the State of California are required to submit routine samples for PSP toxin analysis.

Consumers of Washington clams are cautioned to eat only the white meat. Persons engaged in the sport-harvesting of any bivalve shellfish (e.g., mussels, clams, scallops) should contact the Department's "Shellfish Information Line" at 1-800-553-4133 for a current update on marine biotoxin activity.

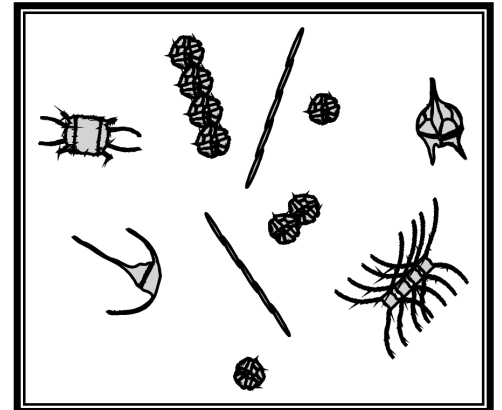
Persons taking any clams or scallops are advised to remove and discard the dark parts (i.e., the digestive organs or viscera). Only the white meat of clams and scallops should be prepared for human consumption.

### **How to Contact Us:**

*The Biotoxin Monthly Report is prepared and distributed by the California Department of Health Services' Marine Biotoxin Monitoring and Control Program.*

*For information on our program please call (510) 540-3423, fax us at (510) 540-2716, or send me an email at [glangloi@ix.netcom.com](mailto:glangloi@ix.netcom.com).*

*Call our toll-free number for recorded information on shellfish quarantines related to marine biotoxins: (800) 553-4133.*



### **PHYTOPLANKTON MONITORING: *Pseudo-nitzschia* Bloom Continues in Southern California**

The enclosed report (No. 99-11) shows the distribution of toxigenic phytoplankton during April. The *Pseudo-nitzschia* bloom that our volunteer observers first detected in March continued through April. This bloom also moved along the Southern California coast as far north as Santa Barbara and, to a lesser extent, San Luis Obispo. Thanks to the observations of our volunteers along the coast we were alerted to the spread of this bloom, which allowed us to expand our sampling efforts for shellfish and finfish. Domoic acid was detected in several shellfish samples during this time (see the enclosed technical report No. 99-09).

Although the *Pseudo-nitzschia* bloom continued along the San Diego coast through the end of April, the detection of domoic acid ceased by the third week. The most likely explanation for

*(Continued on page 2)*

this observation is that the original bloom of a toxin-producing species was replaced by a non-toxic species by mid-April. Table 2 lists program participants submitting phytoplankton samples during April.

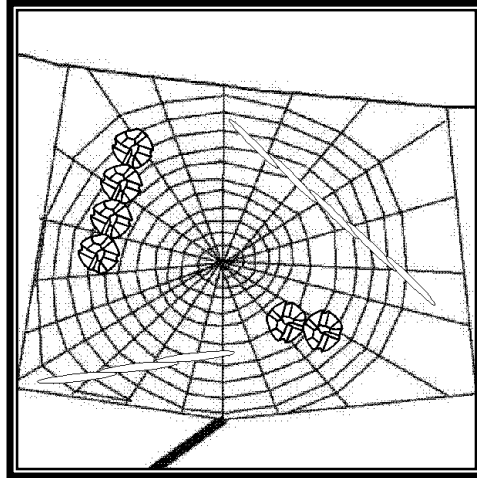
### ***Volunteers Needed***

The *Pseudo-nitzschia* bloom that occurred along the Southern California coast during March and April provided an excellent illustration of the importance of our volunteer observers. Without their dedicated efforts we would not have been aware of this event in time to take action. There is a lot of coastline to monitor, so we can always use more help. If you would like to learn more about our program give us a call at (510) 540-3423.

### ***New Names and Faces***

Our program has experienced some changes recently that we wanted to share with you. Pat Smith has left our program to resume her nursing career. Pat started as a student assistant with our pilot program for phytoplankton monitoring in 1992, eventually joining us on a full-time basis. Her expertise in the identification of phytoplankton and her knack for instilling our volunteers with her enthusiasm will definitely be missed!

Fortunately we have recently been joined by two new student assistants. Chris Terry is studying Environmental and Molecular Biology at U.C. Berkeley, and Astrid Juengling, a graduate of the U.C. Berkeley School of Natural Resources, is continuing her studies in public health. Chris and Astrid bring both enthusiasm and expertise to our program and will undoubtedly help improve our efforts.



### **Biotoxin Web Sites**

As you might imagine, there is a tremendous amount of information on marine biotoxins on the internet these days. For those of you who would like to expand your knowledge of biotoxins along the west coast, in other parts of the U.S., or elsewhere in the world, we have provided a brief listing to help you on your journey. The following sites provide a good starting point for learning more about marine biotoxins, environmental data such as ocean temperatures, harmful algae blooms (HABs), and even the non-harmful algae blooms (HAB-nots). We certainly have not found all of the relevant web sites, so please keep us informed if you find a site of interest.

All of the following site addresses are preceded by the ubiquitous "http://".

[ioc.unesco.org/hab/default.htm](http://ioc.unesco.org/hab/default.htm)  
Intergovernmental Oceanographic Commission of UNESCO site that contains an online version of the Harmful Algal Bloom newsletter.

[www.nwfsc.noaa.gov/hab/](http://www.nwfsc.noaa.gov/hab/)  
NOAA/NMFS West Coast Marine Biotoxins and Harmful Algal Blooms home page containing newsletters and updates from west coast monitoring agencies. A color version of our monthly report is posted on this site.

[www.marine.ie/frc/toxins/](http://www.marine.ie/frc/toxins/)  
National Marine Biotoxins Reference Laboratory for Ireland. Contains information on shellfish and phytoplankton monitoring.

[www2.fimr.fi/project/algaline/gallery/gallery.htm](http://www2.fimr.fi/project/algaline/gallery/gallery.htm)  
Photo gallery of phytoplankton collected in the Baltic Sea, Åland Sea and in the Bothnian Sea.

[vm.cfsan.fda.gov/~mow/intro.html](http://vm.cfsan.fda.gov/~mow/intro.html)  
USFDA Bad Bug Book with information on biotoxins and pathogens.

[www.redtide.whoi.edu/hab/](http://www.redtide.whoi.edu/hab/)  
Woods Hole Oceanographic Institute site. Good background information on HAB's, photos, an current news items.

[psbgsil.nesdis.noaa.gov:8080/PSB/EPS/SST/contour.html](http://psbgsil.nesdis.noaa.gov:8080/PSB/EPS/SST/contour.html)  
NOAA's National Environmental Satellite, Data, and Information Service (NESDIS) containing experimental sea surface temperature (SST) contour charts.

[seaboard.ndbc.noaa.gov/realtime.shtml](http://seaboard.ndbc.noaa.gov/realtime.shtml)  
National Data Buoy Center Real-time data for coastal buoys: SST, wind speed/direction, swell height, and much more.

Gregg Langlois

**Table 1.** California Marine Biotoxin Monitoring and Control Program participants submitting shellfish samples during April 1999.

COUNTY	AGENCY	SAMPLES
<b>Del Norte</b>	Del Norte County Health Department	1
<b>Humboldt</b>	Coast Seafood Company	4
<b>Mendocino</b>	CDHS Volunteer	2
	California Department of Parks and Recreation	1
<b>Sonoma</b>	None Submitted	
<b>Marin</b>	Bay Bottom Beds, Inc.	4
	Cove Mussel Company	4
	California State University Monterey Bay	3
	CDHS Environmental Management Branch	1
	Hog Island Oyster Company	2
	Johnson Oyster Company	16
<b>San Francisco</b>	San Francisco County Health Department	1
<b>San Mateo</b>	San Mateo County Environmental Health Department	1
	California State University Monterey Bay	2
<b>Santa Cruz</b>	Santa Cruz County Environmental Health Department	1
<b>Monterey</b>	California State University Monterey Bay	4
	Monterey County Environmental Health Department	1
<b>San Luis Obispo</b>	Williams Shellfish Company	4
<b>Santa Barbara</b>	U.C. Santa Barbara Marine Science Institute	3
	Vandenberg Air Force Base, Environmental Health Services	1
<b>Ventura</b>	Ventura County Environmental Health Department	1
<b>Los Angeles</b>	Los Angeles County Health Department	2
<b>Orange</b>	Orange County Health Care Agency	1
	Ecomar, Inc.	4
<b>San Diego</b>	CDHS Volunteer	3
	Carlsbad Aquafarms, Inc.	4

**Table 2.** Agencies and organizations participating in marine phytoplankton sample collection in California during April 1999.

COUNTY	AGENCY	SAMPLES
<b>Del Norte</b>	Crescent Coastal Research	1
<b>Humboldt</b>	Coast Seafood Company	2
	Humboldt State University Marine Lab	1
<b>Mendocino</b>	College of the Redwoods	4
	CDHS Volunteer (Sara Wheaton, John Richardson, Ann McBride)	6
<b>Sonoma</b>	Bodega Marine Lab	2
<b>Marin</b>	CDHS Volunteer (Brent Anderson)	3
	CDHS Environmental Management Branch	1
	California Department of Fish and Game	1
	Johnson Oyster Company	16
<b>Alameda</b>	City of Berkeley	1
<b>San Francisco</b>	CDHS Volunteer (Eugenia McNaughton)	2
<b>San Mateo</b>	None Submitted	
<b>Santa Cruz</b>	California Department of Parks and Recreation	1
	Santa Cruz County Environmental Health Department	2
<b>Monterey</b>	CDHS Volunteer (Lisa Marrack)	2
<b>San Luis Obispo</b>	CDHS Volunteer (Rich Moran)	2
	Port San Luis Marine Institute	1
	Tenara Environmental	5
<b>Santa Barbara</b>	California Department of Parks and Recreation	1
	Vandenberg Air Force Base, Environmental Health Services	1
<b>Ventura</b>	None Submitted	
<b>Los Angeles</b>	Southern California Marine Institute, Fish Harbor Lab	3
	Los Angeles County Sanitation District	1
	Los Angeles County Environmental Health Department	2
<b>Orange</b>	Orange County Health Care Agency	2
	Orange County Sanitation District	6
<b>San Diego</b>	CDHS Volunteers (Paul Sims, Randy and Bill Dick, Kai Schumann, Jeff Kermode, and Vicki Ganguli)	11
	San Diego County Environmental Health	2

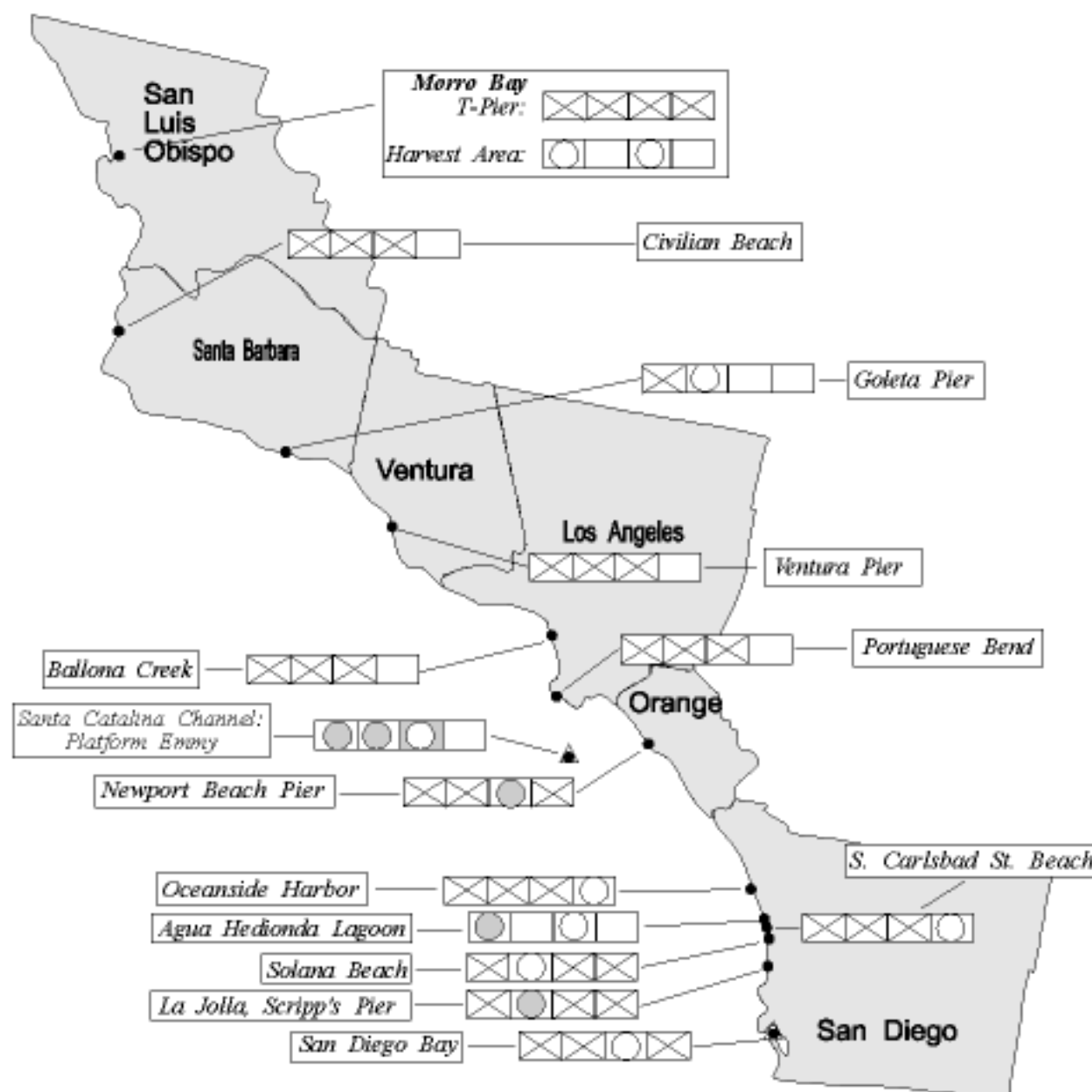
# SHELLFISH BIOTOXIN MONTHLY REPORT

April 1999

Technical Report No. 99-10

## Distribution of Shellfish Biotoxins

### Southern California



#### KEY FOR SHELLFISH BIOTOXIN DATA

Week:	1	2	3	4
PSP Range:				
(ug/100 g)	no sample	not detected	< 80 <sup>1</sup>	≥ 80
DA Range:				
(ppm)	no sample	not detected	< 20 <sup>2</sup>	≥ 20

<sup>1</sup>PSP Alert Level <sup>2</sup>DA Alert Level  
● = Single Site ● = Multiple Sites ▲ = Offshore Site

Source: DHS Marine Biotoxin Monitoring and Control Program, April 1999.

## INTRODUCTION:

Please note the following conventions: (i) All data are for mussel samples, unless otherwise noted; (ii) All samples are analyzed for PSP toxins; domoic acid (DA) analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA). Please refer to the figure key for an explanation of the symbols used for the time of month of sample collection and the toxicity range.

### Southern California Summary:

**Paralytic Shellfish Poisoning (PSP):** PSP toxicity was detected at one sampling station during April. Mussels from an offshore oil platform in Santa Catalina Channel (Orange County) contained 41 ug of PSP toxins (April 19).

**Domoic Acid Poisoning (DAP):** Domoic acid (DA) was detected in mussels from four sites in Southern California during April. Mussel samples were collected at several sites in response to the *Pseudo-nitzschia* bloom that began in March. The occurrence of this diatom was first detected by volunteers in our Phytoplankton Monitoring Program. The low levels of DA detected in March along the San Diego coast persisted into April. Mussels from Agua Hedionda Lagoon (April 5) and Scripps Pier (April 10) contained 1.1 ppm and 1.2 ppm of DA, respectively.

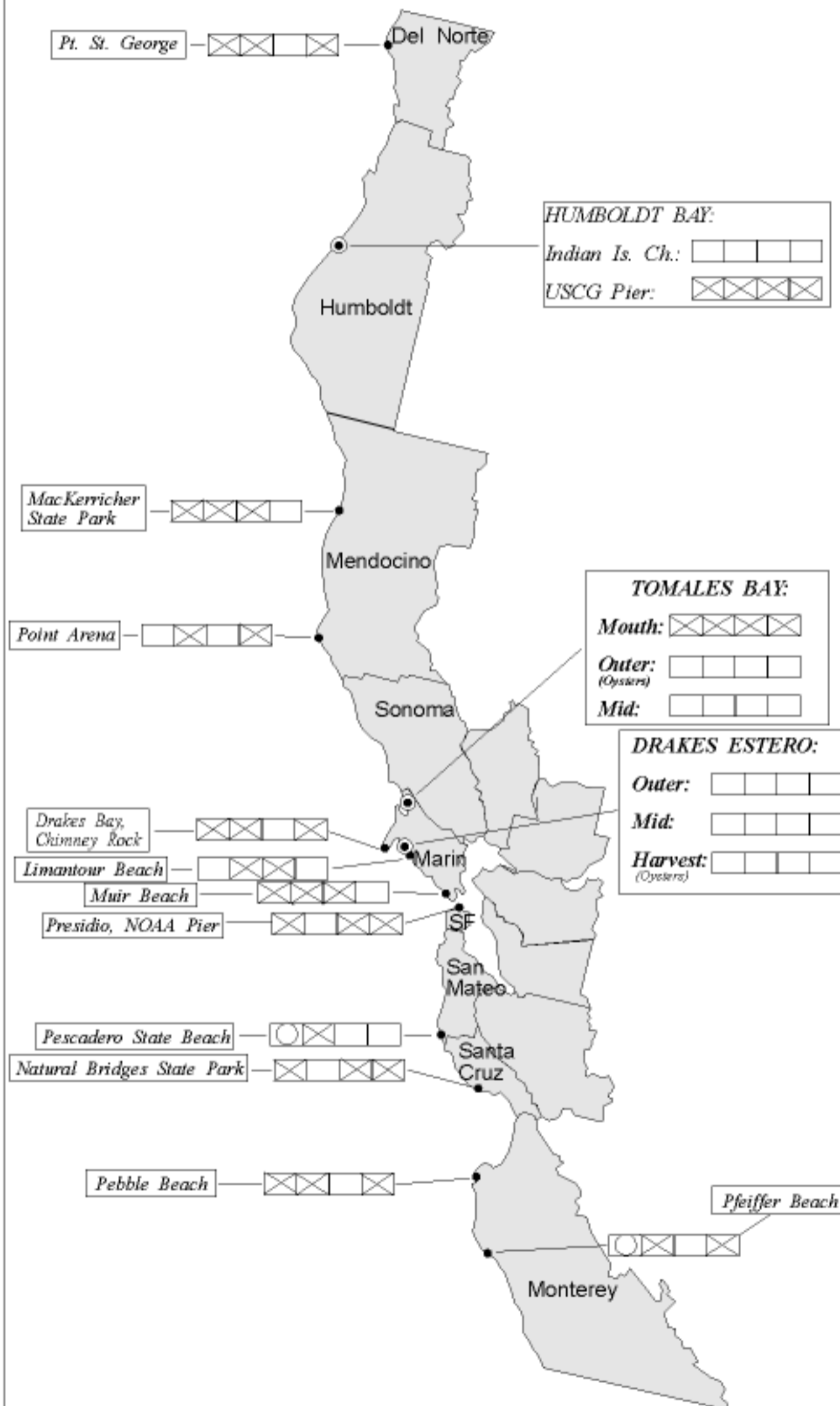
The highest DA concentration was detected offshore of Orange County on Platform Emmy (9.3 ppm, April 5). By April 12 the level had decreased to 2.9 ppm and by April 19 DA was not detected. Mussels from the Newport Beach Pier contained 1.1 ppm on April 15.

**For Information on our Volunteer Field Sampling Program Please Call:**

**(510) 540-3423**

# Distribution of Shellfish Biotoxins

## Northern California



### Northern California Summary:

#### *Paralytic Shellfish Poisoning (PSP):*

PSP toxicity was not detected in any shellfish samples collected from Northern California counties during April.

#### *Domoic Acid:*

Domoic acid was not detected in any shellfish samples collected from Northern California counties during April.

*The Marine Biotoxin Monitoring and Control Program is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins.*

*For More Information Please Call:  
(510) 540-3423*

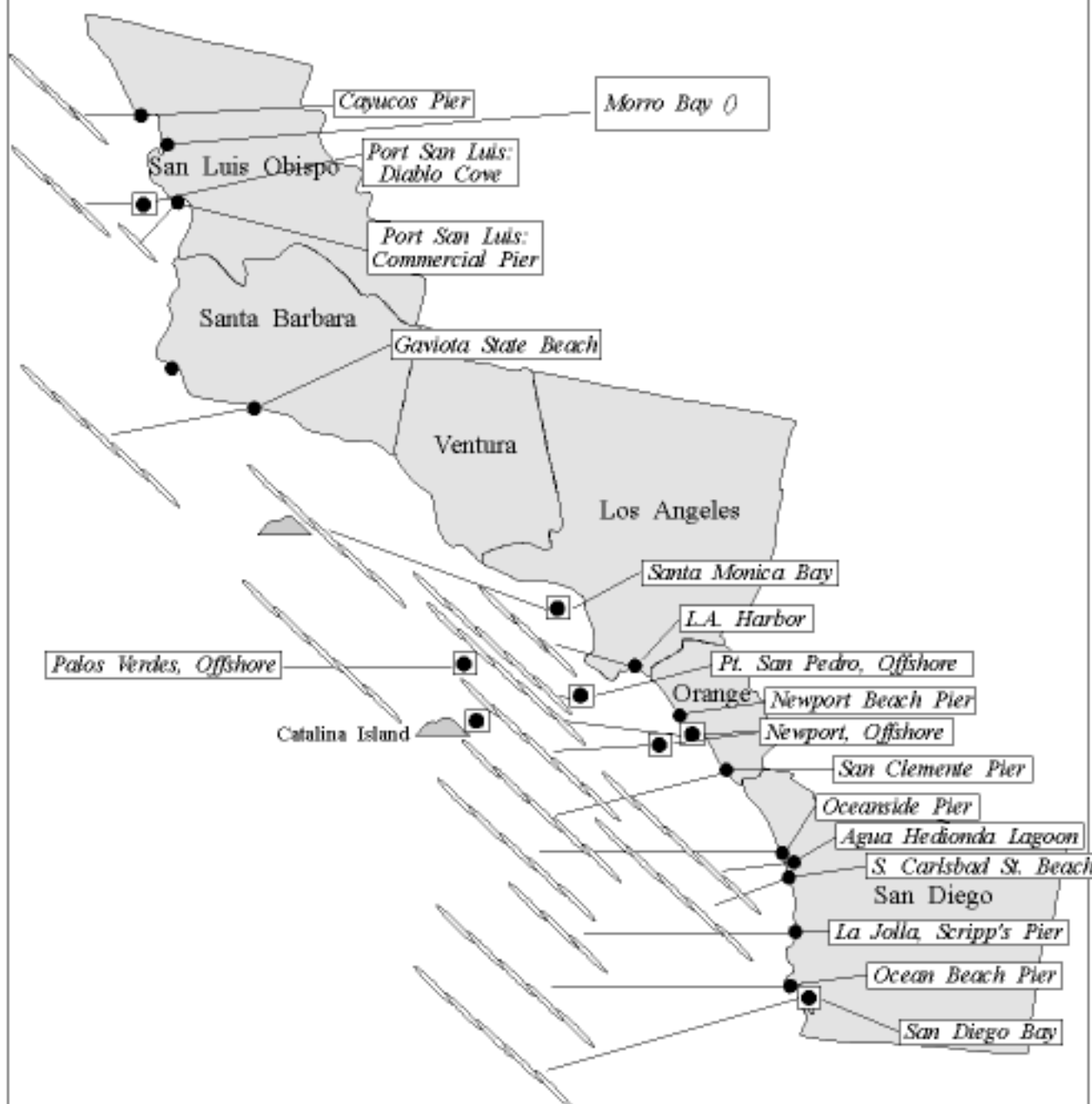
*For Recorded Biotoxin Information Call:  
(800) 553-4133*

# Phytoplankton Monthly Report

April 1999

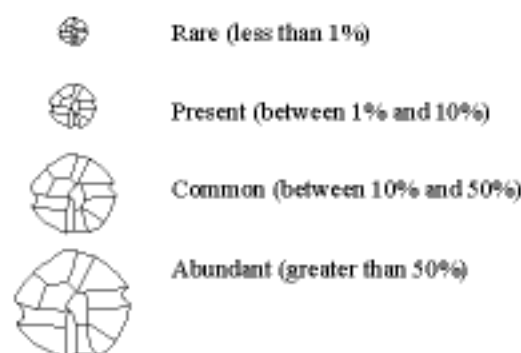
Technical Report No. 99-11

## Distribution of Toxin Producing Phytoplankton Southern California



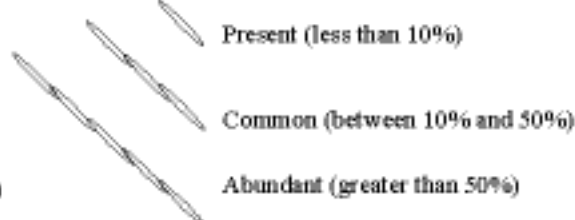
### Relative Abundance of Known Toxin Producers

#### Alexandrium Species



For areas with multiple sampling stations, species abundance at each station is represented as follows:  
(a.p) = Abundance for Alexandrium and Pseudo-nitzschia,  
e.g., (c.p) = common, present; (a,-) = abundant, not observed

#### Pseudo-nitzschia Species



#### MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- ⊙ Multiple Sampling Stations
- ◼ Offshore Sampling Station

### Southern California Summary:

*Alexandrium catenella* (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). *Alexandrium* was not observed at any site along the Southern California coast during April.

*Pseudo-nitzschia* species (includes all known potential domoic acid producing diatoms). The high relative abundances of *Pseudo-nitzschia* observed in March along the coast of San Diego, Orange, and Los Angeles counties continued through April. Increases in this diatom were also observed farther northward along the coast of Santa Barbara and San Luis Obispo counties.

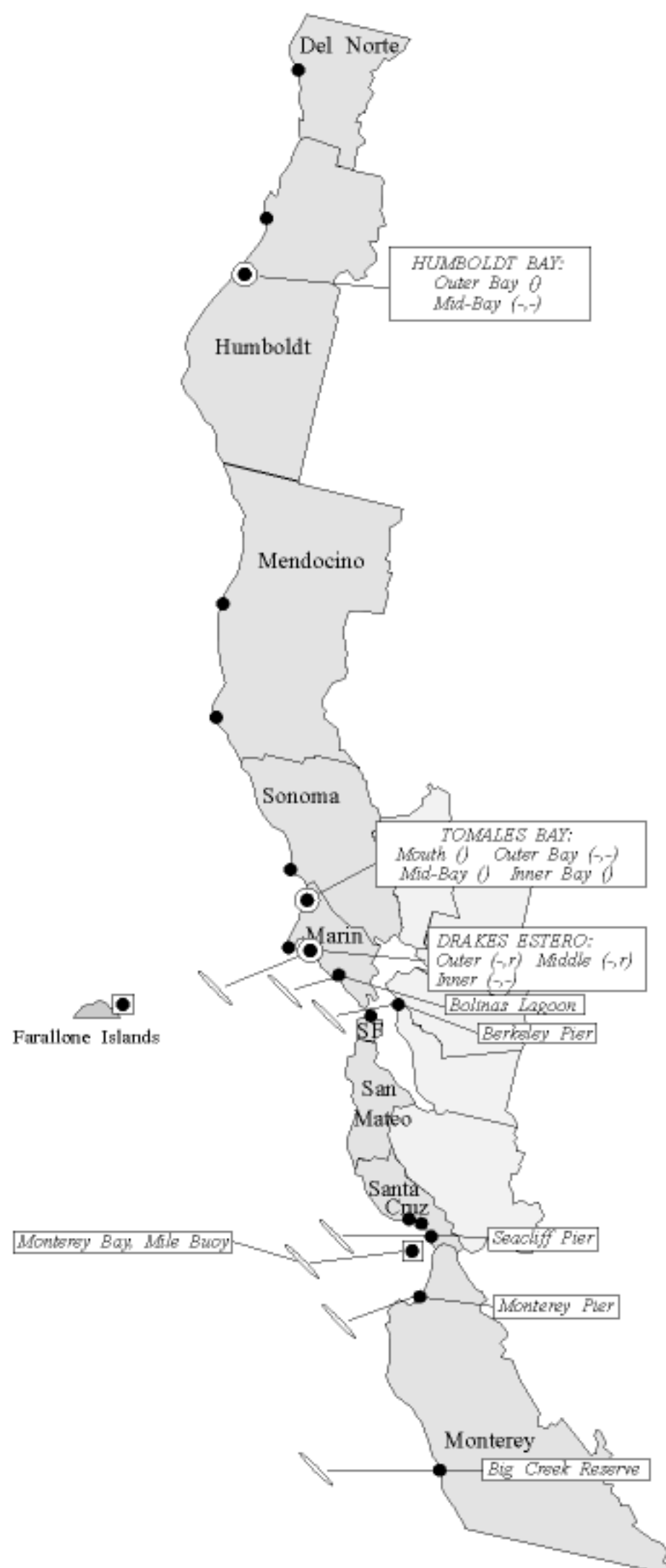
There were lower relative abundances of *Pseudo-nitzschia* at most sites by the end of April, although it remained abundant at several sites along the San Diego coast. Low levels of domoic acid were found in mussels from San Diego and Orange counties during the first two weeks of April. This toxin was not detected later in the month although *Pseudo-nitzschia* was still common. It's possible that a toxin-producing species was present during the initial bloom and was later replaced by a non-toxic species.

*The Phytoplankton Monitoring Program, managed by the California Department of Health Services, is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact California's valuable shellfish resources or become a threat to consumer safety.*

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## Distribution of Toxin Producing Phytoplankton Northern California



### Northern California Summary:

*Alexandrium catenella* (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). *Alexandrium* was absent from all Northern California sites during April.

*Pseudo-nitzschia species* (includes all known potential domoic acid producing diatoms). *Pseudo-nitzschia* was observed at several locations along the coast during April.

Low numbers of this diatom were observed from the southern coast of Monterey County through Marin County to the north. The relative abundance and cell numbers of *Pseudo-nitzschia* were low for all of these observations.

*The Phytoplankton Monitoring Program, managed by the California Department of Health Services, is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact California's valuable shellfish resources or become a threat to consumer safety.*

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